

REMARKS

As an initial matter, Applicants thank the Examiner for taking the time to meet with Applicants' representative on August 2, 2005. During the interview, Applicants' representative argued that the claims are differentiable over the cited prior art. Applicants' representative also proposed the amendments to claim 18 as set forth above, and the Examiner indicated that it appeared that the proposed amendments to claim 18 would take the claims out of the scope of the '027 patent. Applicants appreciate this indication.

Upon entry of this response, claims 18-22 and 24-38 are present in this application. Claim 18 is an independent claim directed to a method for making sports floors coverings, with the remaining claims depending therefrom. Claim 18 has been amended to clarify that the average molecular mass of the dispersions is the **number** average molecular mass. Claim 18 has also been amended to specify that the dispersions are obtained from a particular process. Support for the claim amendments can be found in the specification as originally filed, in particular from page 6, line 16 to page 7, line 4. Therefore, Applicants submit that the amendments do not introduce any new matter within the meaning of 35 U.S.C. §132.

Claims 18-22 and 24-38 stand rejected as being indefinite for

failing to particularly point out and claim the desired subject matter. Claims 18-22 and 24-38 also stand rejected as being obvious over U.S. Patent No. 5,959,027 to Jakubowski et al.

Based on the foregoing amendments and the following remarks, Applicants respectfully request reconsideration and withdrawal of the outstanding rejections of the claims.

**1. Rejection of Claims 18-22 and 24-38
under 35 U.S.C. § 112, second paragraph**

The Official Action states that claims 18-22 and 24-38 are rejected under 35 U.S.C. §112, second paragraph for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The reasons for the rejection are given in the Official Action.

RESPONSE

Applicants respectfully traverse this rejection and request reconsideration and withdrawal thereof.

By this response and amendment, Applicants have amended claim 18 to include the feature that the polyurethane polymers of the dispersions have **a number** average molecular mass of 25,000 to 100,000 Daltons. Applicants direct the Examiner's attention to page 6 of the instant specification. In particular, Applicants

note the paragraph spanning lines 16-20, where it is stated that "[t]he corresponding polyurethane polymer generally has an average molecular mass of 25,000 to 100,000 Daltons. The corresponding data **relate to numeric average (M_n) of gel permeation chromatography (GPC) measurements.**" (Emphasis added). Therefore, Applicants respectfully submit that the number average molecular mass is relative to the numeric average of gel permeation chromatography measurements.

In addition, Applicants have amended claim 18 to include the term "a lower molecular and anionic modifiable polyol." During the interview, the Examiner raised the prospect that, although he knows what is meant by the term, "modifiable" may be considered indefinite. Applicants specifically reiterate the position that one of ordinary skill in the art would know what is meant by the phrase "a lower molecular and anionic modifiable polyol" given the teachings of the specification. In particular, Applicants direct the Examiner's attention to the paragraph spanning pages 6 and 7, as well as the second paragraph of page 10, wherein the "lower molecular and anionic modifiable polyol" is more clearly specified. Therefore, based on the knowledge of one of ordinary skill in the art, combined with the teachings of the present specification,

Applicants submit that the term "modifiable" is definite as used in claim 18.

Accordingly, Applicants respectfully submit that the claims are definite and respectfully requests reconsideration and withdrawal of the rejection of claim 18-22 and 24-38 as being indefinite.

2. Rejection of Claims 18-22 and 24-38
under 35 U.S.C. § 103(a)

The Official Action states that claims 18-22 and 24-38 are rejected under 35 U.S.C. § 103(a) as being obvious in view of U.S. Patent No. 5,959,027 to Jakubowski et al. (the '027 patent). The reasons for the rejection are given in the Official Action.

RESPONSE

Applicants respectfully traverse this rejection and request reconsideration and withdrawal thereof. The reference of record does not teach or suggest applicants' inventive subject matter as a whole as recited in the claims. The Examiner has failed to establish a *prima facie* case of obviousness against the presently rejected claims.

To establish a *prima facie* case of obviousness, the PTO must satisfy three requirements. First, the prior art relied upon,

coupled with the knowledge generally available in the art at the time of the invention, must contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988). Second, the proposed modification of the prior art must have had a reasonable expectation of success, determined from the vantage point of the skilled artisan at the time the invention was made. *Amgen Inc. v. Chugai Pharm. Co.*, 18 U.S.P.Q.2d 1016, 1023 (Fed. Cir. 1991). Lastly, the prior art reference must teach or suggest all the limitations of the claims. *In re Wilson*, 165 U.S.P.Q.2d 494, 496 (C.C.P.A. 1970).

As amended above, claim 18 is directed to a method for making sports floors by applying a formulation to a surface. The formulation in the present inventive method comprises aqueous, isocyanate-free polyurethane dispersions having a solvent content of less than or equal to 10 percent by weight and a solid matter content of greater than or equal to 30 percent by weight. The formulation also includes the feature that the polyurethane polymers of said dispersions have a number average molecular mass of 25,000 to 100,000 Daltons. Further, claim 18 specifies that the dispersions are obtained by forming a polyurethane pre-adduct which is reacted with a lower molecular and anionic modifiable polyol

with two or more hydroxy groups reactive with polyisocyanates and one or more carboxy groups inert with respect to polyisocyanates to produce a polyurethane prepolymer. The remaining claims depend from claim 18 and therefore contain all of the limitations found therein. Thus, Applicants submit that, if claim 18 is not obvious over the prior art, neither are the remaining claims.

As discussed during the interview, Applicants again respectfully submit that the '027 patent does not render the claims obvious. The '027 patent is directed to a polyurethane/urea/thiourea latex having a narrow molecular weight polydispersity and sub-micron particle size. The latex is prepared by first preparing a high internal phase ratio (HIPR) emulsion of a polyurethane/urea/thiourea prepolymer, then contacting the emulsion with a chain-extending reagent under such conditions to form the polymer latex. Applicants submit that the '027 patent fails to teach the aqueous, isocyanate-free polyurethane dispersions as claimed in the present claims.

As indicated above, the '027 patent teaches a process for preparing a polyurethane/urea/thiourea **latex** comprising the steps of forming a high internal phase ratio **emulsion** (referred to as an HIPR emulsion). The emulsion comprises a corresponding prepolymer in the presence of water and an emulsifying and stabilizing amount

of a surfactant. The steps of preparing the **latex** also include contacting the HIPR emulsion with a chain-extending reagent to form a corresponding **latex**. Applicants respectfully submit that the method taught in the '027 patent is not capable of producing the dispersions claimed in claim 18 of the present application.

In the disclosure of the '027 patent, the surfactants, i.e. the emulgators, are emulsified in water to prepare an emulsion. The emulsion is then reacted with a chain-extending reagent to produce a polyurethane latex. Therefore, the surfactants of the '027 patent are **external** emulgators which are **not** bound to the polymers.

The polyurethane dispersions presently claimed in this application, on the other hand, are obtained by forming a polyurethane pre-adduct which is reacted with a lower molecular and anionic modifiable polyol with two or more hydroxy groups reactive with polyisocyanates and one or more carboxy groups inert with respect to polyisocyanates to produce a polyurethane prepolymer. The polyurethane pre-adduct of claim 18 is an **internal** emulgator. The internal emulgators are bound to polymers. In support for this position, Applicants direct the Examiner's attention to the current specification, particularly to the description of component (A) (iii) on page 10, the first and second full paragraphs. In step

(b) of the method of manufacturing the polyurethane dispersions, the lower molecular and anionic modifiable polyol component (A)(iii) with two or more hydroxy groups reactive with polyisocyanates and one or more carboxy groups inert with respect to polyisocyanates is reacted with a polyurethane pre-adduct (*cf.* the paragraph bridging pages 6 and 7). Component (A)(iii), which has been included in amended claim 18 above, allows for the stabilization of the polyurethane dispersions used in the method of claim 18. The '027 patent, on the other hand, does not teach a component in the latex that corresponds to component (A)(iii). Thus, Applicants submit that the stable polyurethane **dispersions** used in the method of claim 18 cannot be produced by the teaching of the '027 patent.

Further, unlike the stable dispersions as claimed, Applicants submit that the latex of the '027 patent is unstable. In particular, the shelf life of the polyurethane latex of the '027 patent is less than 6 months due to the fact that the polyurethane latex is prepared with external emulgators and not internal emulgators.

Additionally, Applicants reiterate that the latex taught by the '027 patent is undesirable and unsuitable for use in sports floor coverings. Assuming *arguendo* that the latex of the '027

patent is applied to a large area, as is done when making sports floor coverings, the external surfactants may be washed out and released into the environment. Thus, the latex would **not** be a product that is environmentally compatible, as required by the presently claimed polyurethane dispersions (see, for example, the last paragraph of page 5 of the instant specification).

Further, the types of polyurethane latex prepared in Examples 2 and 3 of the '027 patent contain a polyethylene oxide **monol** having a molecular weight of 950 (col. 8, ll. 9-10). This type of hydrophilic monol can be expected to absorb water. As such, the latex prepared in Examples 2 and 3 of the '027 patent is inapplicable to sports floor coverings (in particular those sports floor coverings which are prepared for outdoor use).

Accordingly, Applicants respectfully submit that the aqueous, isocyanate-free polyurethane dispersions as claimed in claim 18 are very different than the polymers of the '027 patent, which are unsuitable for sports floor coverings.

Furthermore, Applicants reiterate that there is a substantial difference between "floor coverings" and "sports floor coverings." A complete argument regarding the special features of sports floor coverings was provided in the response filed on November 29, 2004, and is hereby incorporated by reference. In summary, the argument

put forth by the Applicants is that 'sports floor coverings' is a term of art and has a very distinct meaning. Sports floor coverings have a specific construction and must meet certain performance standards, the specifics of which have already been presented.

Therefore, Applicants respectfully submit that a *prima facie* case of obviousness has not been established because the cited reference does not teach or suggest each and every claimed feature of claim 18. Further, one of ordinary skill in the art would not have been motivated to modify the '027 patent to make the presently claimed invention as alleged by the Examiner. Based on the distinct properties of the presently claimed polyurethane dispersions, as well as the large distinctions between general floor coverings and sports floor coverings, Applicants submit that the method of the presently claimed subject matter in claim 18 would not have been obvious over the '027 patent. Further, since claim 18 is not obvious over the '027 patent, Applicants submit that claims 19-22 and 24-38, which depend from claim 18 and necessarily contain all of the limitations found in claim 18, are also not obvious over the '027 patent.

Accordingly, applicants respectfully request the Examiner to reconsider and withdraw the rejection of claims 18-22 and 24-38.

CONCLUSION

Claims 18-22 and 24-38 are currently pending in the present application. Applicants respectfully request the Examiner to reconsider and withdraw the rejections and allow all claims pending herein.

The Examiner is requested to contact the undersigned attorney if he has any questions or wishes to further discuss the merits of the presently pending claims.

Respectfully submitted,
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